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A NEW LOACH OF THE GENUS
ACANTHOPHTHALMUS FROM SIAM

BY ROBERT R. HARRY
Stanford University

In his treatise of the freshwater fishes of Siam the late Dr. Hugh M. Smith (1945:300) described and figured certain specimens as *Acanthopthalmus kuhlii* Cuvier & Valenciennes. These did not agree with this species, having a deeper body and broader and fewer bands. Fraser-Brunner (1947:272) is of the opinion that these specimens represent a new Siam subspecies and places them as intermediate between *A. kuhlii kuhlii* Cuvier & Valenciennes and *A. kuhlii sumatranus* Fraser-Brunner. He further conjectured that these island forms evolved from it in two directions.

Through the courtesy of Dr. Leonard P. Schultz of the United States National Museum four of the specimens in question (including the one figured by Smith) were forwarded to us. Our examination of this material appears to show them to be distinct from previously described forms, but most closely related to *A. kuhlii*. Dr. Schultz has kindly allowed the Stanford Museum to retain one specimen.

Dr. George S. Myers brought my attention to this problem, and it was originally intended that he was to have been co-author. I wish to thank Dr. Myers, however, for reading the manuscript and for constructive criticism throughout.

Acanthopthalmus myersi new species

HOLOTYPE: U.S.N.M. number 103300; 67.2 mm in standard length; collected at Nong Khor, S. E. Siam on February 11, 1927, by Hugh M. Smith. This specimen was figured by Smith (1945:300, fig. 62) as *Acanthopthalmus kuhlii*.

PARATYPES: U.S.N.M. number 103300; 2 specimens 40.3 and 46.0 mm. in standard length; same locality as above. Stanford University number 14888; 1 specimen 48.0 mm. in standard length; same locality as above.

DIAGNOSIS: A deep bodied, compressed *Acanthopthalmus* with a basic color pattern agreeing with figure 1, c of Fraser-Brunner (1947:171). Head 6-7.5 in standard length. Pelvic fin origin slightly

APR 28 1949

behind middle of total length. Dorsal fin rays II,8. Origin of anal fin distinctly behind a vertical from posterior end of dorsal base. Nine to 11 black transverse bands on body.

DESCRIPTION: In the following description the measurements and counts are taken from all four types with those for the holotype given first, followed by the range of variation for the three paratypes in parentheses. The measurements were made with a pair of fine-point dividers to the nearest tenth of a millimeter and divided into standard or head length as indicated. The fleshy skin at the bases of the fins was dissected away to make the counts. The last two closely applied rays in the dorsal and anal fins are counted as one.

Body elongate, moderately compressed, that of the holotype strongly compressed and deep. Body depth 6.9 (7.0-7.2) in standard length. Caudal peduncle long, slightly tapering in depth, its least depth 2.9 (2.1-2.4) in its length from end of dorsal base. Anus immediately in advance of anal fin.

Head moderately deep and compressed, 7.5 (6.0-7.0) in standard length. Snout steep, rounded before eye, 2.4 (1.9-2.7) in head length. Nostrils on each side close together, situated immediately before the eye. Anterior nostril with a raised tube, its underside pigmented, the opening inclined obliquely forward. Posterior nostril without a raised rim, half-moon shaped or oval. Interorbital strongly convex, its width 5.3 (5.0-6.1) in head. The two suborbital spines in a slit below eye, their bases inserted slightly before eye. Anterior spine small, its tip extending beyond posterior border of pupil. The larger prong terminates beyond posterior rim of eye. Mouth small, inferior, the maxillary not reaching to a vertical from anterior border of eye. Three pairs of barbels present, well developed: rostral pair close together near the apex of the snout; maxillary pair and mandibular pair near the angle of the gape. In holotype mandibular barbels slightly the longest; in paratypes barbel pairs approximately of equal length. Lips of mandible expanded into two well developed fleshy lobes on each side of symphysis. Eye small, before middle of head length, its diameter 9.0 (6.7-8.8) in head. Gill opening restricted, its width 3.6 (3.4-4.1) in head, extending to opposite uppermost rays of pectoral fin.

Scales excessively small, present on body and nape. Absent on head. Lateral line absent.

Dorsal fin II,8 (II,8) on posterior third of body. Distance from tip of snout to dorsal origin 1.4 (1.3-1.5) in standard length. Distance from dorsal origin to pelvic origin 6.7 (6.6-8.1) in standard length. Distance from posterior end of dorsal base to a vertical from anal fin origin 4.5 (10.0-13.4) in head. Length of dorsal base 2.3 (1.1-2.8) in head. Anal fin II,7 (II,6 or 7). Length of anal base 2.7 (2.3-2.4) in head. Length of anal fin measured from origin to tip of longest ray 1.3 (1.4-1.5) in head. Distance from anal fin origin to tip of snout 1.3 (1.2-1.3) in standard length. Distance from pelvic fin origin to anal base 4.7 (4.8-5.0) in standard length. Pectoral fin 1,9 (1,9), its longest ray 1.3 (1.6-1.8) in head. Pelvic fin 1,5 (1,5), its length 2.0 (2.4-2.9) in head. Distance from tip of snout to pelvic fin organ 2.0 (1.6-1.7) in standard length. Caudal fin slightly lunate, 14 principal rays, its length 8.0 (6.2-6.8) in standard length.

MEASUREMENTS IN PERCENT OF STANDARD LENGTH:

Length of head 13.3 (14.4-16.6); length of snout 5.7 (5.4-7.0); diameter of orbit 1.5 (1.7-2.5); width of interorbital 2.5 (2.7-3.0); width of gill opening 3.7 (3.5-5.0); greatest depth of body 14.6 (13.2-14.4); length of caudal peduncle from end of dorsal base to mid-base of caudal fin 25.3 (21.7-23.3); least depth of caudal peduncle 8.8 (9.8-10.2); distance from snout to dorsal origin 70.8 (71.3-76.7); distance from pelvic origin to a vertical from dorsal origin 14.9 (12.4-15.2); distance from end of dorsal base to a vertical from anal fin 3.0 (1.2-1.5); length from dorsal origin to tip of longest depressed ray 10.3 (10.9-12.5); distance from snout to anal 76.6 (77.1-81.9); distance from pelvic origin to anal 21.4 (20.0-20.8); length of anal base 4.9 (6.3-7.0); length from anal origin to tip of longest depressed ray 10.1 (10.4-11.2); length of longest pectoral ray 10.0 (8.7-9.5); distance from tip of snout to pelvic fin base 50.6 (56.5-61.3); length of pelvic fin 6.9 (5.6-6.0); length of caudal fin from mid-base of fin to tip of longest rays 12.5 (14.7-16.2).

COLORATION: Color pattern same as that of *A. kuhlii* in the holotype and *A. sumatranus* in the paratypes, but significantly differs from both species in fewer body bands and by lacking the lighter coloration at the middle of each band, which is characteristic of the other two species. Broad transverse bands (in life colors black, according to Smith) alternate with narrow light bands (in life colors red, according to Smith). These bands extend well down the side to the belly. Three dark bands are present on the head, 9-11 on the body (in the holotype 11 on the left, 10 on the right side), and one large darker band on the caudal fin. Belly and throat light, yellowish in alcohol specimens.

The dark body bands in the paratypes do not extend as far down the sides as in the holotype and are more irregular in outline, approaching *A. semicinctus* in this respect. It would appear that the bands become more complete ventrally with age.

DISCUSSION OF RELATIONSHIPS: The Cobitid loaches of the genus *Acanthopthalmus* related to *A. kuhlii* have been the subject of a recent study by Fraser-Brunner (1940). His review revealed that several forms had been confused as the actually very rare *kuhlii*. He recognized four forms: *A. shelfordi* (Popta) from Borneo, *semicinctus* Fraser-Brunner from the Malay Peninsula, *kuhlii kuhlii* Cuvier & Valenciennes from Java, and *kuhlii sumatranus* from Borneo. The two subspecies are recognized from a single example from each locality. Considering the difficulty of pursuing a problem of subspeciation on the basis of so few examples, I am inclined to accept Fraser-Brunner's subspecies as full species until further investigations show that these forms intergrade. Fraser-Brunner's basic divisions in his key to differentiate *shelfordi* and *semicinctus* from *kuhlii* are apparently invalid. Specific variation in *semicinctus* alone overlaps in all the characteristics he used. In addition, the head length of 8 for *kuhlii* and *sumatranus* does not agree with his illustrations of the species, which show it as approximately 6.5 times in standard length. Neither are the pelvic fins shown in the latter two species as far behind the middle of the total length as would be expected from the key. The color pattern differences are the only characters evident that will sufficiently differentiate the several forms.

The closest relatives of *A. myersi* appear to be *khulii*, *sumatranus* and *semicinctus*. It is similar to the first two forms in the number of dorsal rays (II,7 or 8), the number of anal rays (II, 6 or 7), in the position of the pelvic fin which is somewhat behind the middle of the standard length, in the relation of the anal origin to the dorsal base (anal fin commencing distinctly behind end of dorsal), and in basic color pattern (parallel bands of body in a single series, extending well down the side). It can be differentiated from them by greatest depth (6.9-7.2 in *myersi* versus 8-9 in *khulii* and *sumatranus*), in distance from pelvic origin to anal origin (4.7-5.0 versus 4.0-4.3 in standard length), in head length (6.0-7.5 versus 8?), by the number of vertical bands on the body exclusive of the head (9-11 versus 12-17) and by the coloration of the bands (Body bands not normally divided in the middle [divided on one band on the holotype only] and never paler in the center than at the edges, versus bands paler in the center than at the edges or are distinctly paired).

A. myersi is separated from *semicinctus* by the number of dorsal rays (II,8 versus II,6 or 7), and by differences of coloration (parallel bands extending down the sides, lacking a median light saddle on any of the bands versus tapering patches confined to the upper part of the body and generally a median light saddle on every band).

This species is named *Acanthopthalmus myersi* in honor of Prof. George Sprague Myers of Stanford University in appreciation of his interest and research on Indo-Malayan fishes.

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